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ISSUE 32

APRIL 1986

Midnite Software Gazette

The First Independent U.S. Magazine for users of Commodore brand computers.

Includes The PAPER

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I N T R O D U C I N G

SUPER KIT/1541

BY MARTY FRANZ & JOE PETER

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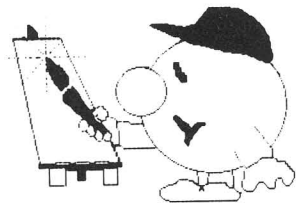
GRAPHIC SCREEN CONVERTER.

By Ben Reynolds
R & M Graphics Plus

THE KOALA, PRINTSHOP, DOODLE, SUPER SKETCH, MICRO ILLUSTRATOR, SCREEN CONVERTER.



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R & M Graphics Plus

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* LET US KNOW WHICH MACHINE YOU USE *

COMPUTER HARDWARE AND SOFTWARE ADVERTISING

Let's face it. Although you have spent hundreds or thousands of dollars on your computer system, you are going to spend hundreds, possibly thousands of dollars, on software. And, in spite of all the reviews that we, other magazines, or user's group newsletters may publish, printed advertising has an effect on your purchase decisions. So be it. Advertising keeps most magazines going. Advertising keeps many manufacturers going. And advertising keeps all mail order houses going.

The problem is that many advertisments are misleading, intentionally or innocently. After you buy a product based on inaccurate advertisements, it hardly matters which - you will still feel cheated.

Of course, you can avoid this problem by never reading advertising, by waiting until the product has been out for awhile and you have read reviews from a reputable source, or by insisting on looking at the package at your local retailer.

Simply not reading advertising would work, but advertisements can be a valuable source of information. In spite of all the hype, advertisements can indicate the state of the art and the state of the market. By contrasting what is promised with what you have, and finding a point somewhere around the middle between the two, you can get an idea of what will be available sometime in the next year.

Waiting for reviews can also work. But it can take time for the product you are interested in to be reviewed by a reputable source. This can cause problems if your need is immediate. Also, nobody can absolutely guarantee the accuracy of their reviews. A few of us try to be honest, accurate, and objective; but we are human.

The best way to be sure a program works and has the features you want is to look at it. If a friend has it, fine. Look at your friend's copy. If it works, buy it. If you have no friends with a copy, go to a computer specialty shop that will show you the software. Do not simply look at a demo, it is simply another advertisement. Look at a commercial production copy. Ask the salesman to help you. If it works, and you are going to buy the program, **BUY IT FROM THE RETAILER WHO TOOK THE TIME AND EFFORT TO DEMONSTRATE IT FOR YOU!** These shops are invaluable to users and well worth the money you might otherwise save by going to a major discounter or a mail order house. Finding the right program with their help just once may save you enough to make up the higher prices of the specialty shop on several items. And generally, don't be afraid to take an open package as long, as it has all the warranty and registration slips with it. This is the one you played with, and you know that this copy works.

But some retailers will not let you look at a program. Or there may not be a store anywhere nearby. And there is still the problem of the advertisments to begin with. You may have to rely on the advertisements for some information.

What are advertisements, anyway? Advertisments are commercial material distributed in return for some kind of pay. Advertisements are generally placed with the intent of enticing consumers to purchase some product. Advertisements are generally competitive - that is, for almost any advertised product or service, there is an alternative source for a similar product or service; and often the alternative is advertised as well. In short, an advertiser is looking for your money.

But that is OK. We want software. It is only right that we pay for the software. And if we don't pay for the software, there won't be any. After all,

the programmers have to make a living as well. It good that the manufacturers compete with each other. Having alternative sources for similar products helps improve the quality and lower the price. So far, so good. In fact, it really looks like advertising can be a good thing.

The problem arises in the strategy and tactics by which advertisers compete with each other for your money. If Company A and Company B have similar products on the market, each must make their product look more attractive than the other's. If the two are functionally identical, and Company A begins by exhaustively listing its product's features, Company B must find some way of making their product at least equally, if not more, attractive, than their competitor's. You can see the trouble that can follow.

To make matters worse, suppose that Company C is developing a product that, when released, will compete with the products of both Company A and Company B. It is not yet released, or even announced. Seeing the other two products, Company C figures that it can make a better product by adding features. But Companies A and B may make alot of sales and make names for themselves before Company C's product is ready. And name recognition is very important. So, Company C announces their product and starts to advertise. They list the features that will put make their product better than that of their competitors. But, as they get further into the development, one or two of the features might be incredibly troublesome, or impossible, to include. But the ads that will appear next month were submitted three months ago, and have already gone to press. And so it goes.

This is all over-simplified, but it does outline some of the forces that influence the advertisements that you see in magazines. In fact, it is almost surprising that advertisements are as accurate as they are. Software marketing is a highly competitive business. But that does not excuse the abuses that do occur.

For the sake of the consumer, it would be nice if: First, the abuses could be pointed out and dealt with, and; Second, the emphasis of marketing strategy could be redirected to contain more substance and less art.

Specifically, I think it appropriate to, in reviews published in Midnite, make mention of the advertisements for a product as well as review the product itself. Such comments should have no effect on the recommendation made regarding the product itself, but should, rather, provide a reflection of the company independent of the product. A reviewer could say that a certain advertisement for a particular product is accurate, inaccurate, misleading, or simply uninformative. Thus, after a period of time, readers would have a feeling for a different companies' accuracy in advertisements, and be able to make better decisions based on ads.

This will not immediately affect the quality and accuracy of advertising. Indeed, it would take a good six months for any effect of such a campaign to be felt, and another six months before it would be reflected in the advertisements themselves. But, by commenting on advertisements we can provide a further service to consumers in their search for hardware and software, and may be able, in time, to impel advertisers to be more careful in their advertising.

Timothy B. Sickbert, Editor.

Books

COBOL WITH STYLE: $15.95 book by Louis J. Chmura and Henry F. Ledgard. From Hayden Books.

This book contains a philosophy for programming that really makes sense (some hadrcore GOTOers may disagree). The fairly dry topic of program design and development is handled in a fresh and entertaining way.

The current art of computer programming in COBOL or any other language is revealed in 19 proverbs that the book emphasizes. all the recommended disciplines are directly related to an overused computer buzzword referred to as "structured programming," a popular design method that is intended to make programs easier to understand and to change. Some excellent, complete, examples of structured programming are included.

This book is not for the absolute beginner, but rather for someone with a small amount of COBOL experience. Recommended. Steve McNamara.

THE BASIC HANDBOOK: $... book by David. A. Lien. From ?

This is the third edition of what has almost become the Bible of BASIC programmers. Published in English, French, German, Dutch, Swedish, Norwegian, Italian, and Spanish, it is a massivve 862 pages long. Subtitled "Encyclopedia of the BASIC Computer Language," this book covers almost all versions written to date. Even soe of the more obscure comands are covered. But full attention is alltoed to the more basic statements.

An alphabetical listing lets you quickly look up the BASIC word you are looking for, read about its function, format, and alternate words. Samples and output are usually included. Non-word operators are also covered extensively in the same manner. There is a handy cross reference index of all the commands.

If this were not enough, appendices proved general information on converting BASIC programs, compiled BASICs, trigonometry, graphics, sound, and even some brand new BASICs. Not much is left out.

Though this book is extremely exhaustive, it is not intended to be a substitute for a tutorial or your manual. Remember, also, that is is not Commodore specific. But as a general reference guide it shines like no other. Highly Recommended. Neil Phillips.

LEARNING C64 BASIC: $... book by David A. Lien. From Compusoft Publishing.

This 345 page softbound book joins the list of C64 information sources. The author takes you through at an easy pace, freeing you from most technical details. Nice for the begininer; not for the serious. The book is divided into several separate sections. Thirty-nine chapters break the lessons of programming into a reasonable size. Most chapters feature exercises, with answers to all of these at the back of the book. Some type-in programs are included, but most of these are not very interesting to the beginner. Nor do they show off the C64's capabilities. An index contains some useful tables, and lastly there is an index.

Topics range from math operators to flowcharting, TAB to arrays. In short, most aspects are covered, but barely. Nothing is discussed with very much depth. Cartoons and special notes throughout help get ideas across. The listings are large and easy to read, with reverse character controls inside quotes translated into more readable characters.

Not a bad book, but then again, there is nothing outstanding about it - especially when there are so many to choose from. It is by no means a reference book, and is suitable only for beginners vaguely interested in programming. Average. Neil Phillips.

MAGIC MOUSE & **MIGHTY MOUSE**: see elsewhere in this issue, under Peripherals.

GRAPHIC PRINTER: $10 graphics utility on disk for the C64. By Michael J. Keryan. DOS protected. Supportive author.

Michael Keryan has improved his Graphic Dump for the C64 and renamed it as Graphic Printer. This exciting program allows you to dump the files from many popular graphics programs to most non-Commodore printers - Epson, C.Itoh, NEC Prowriter, or compatibles. With sixteen different texture patterns, colors are well simulated in black and white. Large pictures print sideways, approximately 7"" x 9"" and the paper scrolls to the next sheet.

The power of this efficient program lies in its machine language speed and design simplicity. Keryan has refined and added many extras to Graphic Printer. These include a fast and easy slide show feature - great for viewing graphic files and alone worth the price of the disk - a Color Ribbon and a Color Change program, a Save program, and plenty of interesting graphic demos.

The program couldn't be simpler to use. After configuring the printer once, you just insert you file disk and all graphics files are listed to the screen and numbered. After entering the desired file number, the graphic appears in color on the screen. You may then change the colors, save to disk, or print with a single keystorke.

Keryan is a constant tinkerer and keeps adding features to his programs. Several sequential files on the disk provide valuable information on some word processors. And the $10 price covers postage from the author. Highly Recommended. Sue Albert

GRAPHIC CONVERT: $20 graphics utility on disk for the C64. By Michael J. Keryan. DOS protected. Supportive author.

A classy graphics utility program, this one cleanly transforms drawings from one graphic program into another. You can transport Flexidraw into Koala, Doodle into Flexidraw, and all three to Print Shop's icons or Screen Magic. This way you can take advantage of the good points of the programs and overcome the weaknesses.

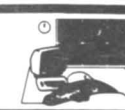
Following the clear and friendly manual is easy but rarely needed with this almost idiot-proof program. On booting up, you are asked to insert your file disk and press return. The grahic files are then listed by number for your selection.

Only a few keystrokes are needed for a conversion, and you can change colors or convert to black and white. An invert key must be used with some b/w drawings for "same tone" results. In converting hi-res to Multicolor, or vice versa, there might be some degradation of the picture. I noticed very little loss except in converting b/w Flexidraw to Print Shop which is the small image (icon) used for greeting cards, etc. This can be overcome by initially drawing a simple, bold image with the thickest line or going over a drawing with a thicker line.

You can also use another more sophisticated program on the disk for better resolution to the Print Shop icons. "D To P Convert" crunches a 32 block B/W file into 3 blocks. This feat is accomplished in 12 minutes of near total silence.

Another program, although not described in the documentation, is "Bgraph to Doodle Convert" which allows you to add drawings to graphs done with B/Graph. Also included are 22 samples of converted pictures, among them four different conversions of the now familiar "Middle Earth."

This tool provides the mobility to experiment between the programs already mentioned, plus Flying Colors, UltraBasic 64, HES Graphics Basic, Cadpac 64, TPUG, Computer Eyes, and any graphic file containing 32 blocks. This means FREEDOM! Graphic Convert gives power and new life to your C64 graphics. And you can't beat



the price of $20, or $25 if packaged with Graphic Printer (q.v.). Highly Recommended. Sue Albert.

FLEXIDRAW 5.0: [update 18:57] $149 light pen and disk graphics package for the C64. From Inkwell Systems. Two year hardware warranty.

As an artist possessed by my computer, I find most drawing programs either too slow or too clumsy. The Flexidraw System offers the most professional and natural drawing options I have seen for the C64. Creative programming has extended the graphic capabilities well beyond the limits of an electronic etch-a-sketch.

The lightpen, a plain device like a child's crayon, has a pressure activated switch in the tip, fits the hand well, and allows for free and natural drawing motion on the monitor screen. This is not a toy, but a professional quality instrument with a very low failure rate and a two year warranty.

The double sided program disk contains the drawing program in black and white, a separate color program, a facility to transmit pictures via modem, a sprite editor and animator, a picture display option, and a game. A fast backup program is provided. The flip side contains a color tutorial, demos, programs, and four symbol libraries for cut and paste.

In drawing mode, the ample work area has a narrow, permanent, selection box to the right. Three pen widths plus a spray mode emulate pen, pencil, or charcoal. There are options for inversion of black and white, crosshairs for accurate alignment, and the familiar boxes, circles, line, arc, ellipses, and rubberbanding. A fast and accurate zoom screen permits an etcher's perfection to drawings. All these and many more choices are there instantly at a touch. Two pages are available and, by using the side by side and up/down split screens, you can join drawings and print them continuously top to bottom or on some printers side by side. The two pages allow for easy "copy and paste" transfer of images which can be flipped and rotated. The ten fonts can be expanded and manipulated.

Twenty-eight fill patterns, plus black or any symbol on the keyboard, offer alot of choices since they can all be inverted and overlaid in a shade mode. Both fill and shade can be tested by using an Ooops! key.

Flexidraw has dynamite disk utilities. Loading, saving, or erasing files is quick and easy. You can list the directory or format a new file disk and instantly return to drawing. Printing is no sweat and no tears in either of two sizes - swift or almost distortion free.

I find the coloring program tedious, but I don't feel deprived. I just work in B/W and think MacIntosh.

The manual is friendly, clear, and well illustrated. Print Shop, Computer Eyes, and Movie Maker are directly compatible with Flexidraw.

Flexifont, a separate package, includes 25 new fonts and a host of features for custom building fonts and symbol files -$29.95.

I find Flexidraw as exciting for artwork as my wordprocessor is for writing. The ability to try endless variations has a liberating effect and gives freedom to explore the outer limits of your talents. Highly Recommended. Sue Albert.

DELUXE PAINT-Amiga: $89.95 graphic design program on disk for the Amiga 1000. From Electronic Arts. Requires AmigaDOS V1.1 or higher, mouse, 512K RAM for 640x400 screen. DOS protected.

The first choice to be made with DELUXE PAINT is which screen you wish to draw on. The lo-res screen is 320x200 pixels with a palette of up to 32 colors. The hi-res screen is 640x400 pixels with a palette of up to 16 colors. However, to

operate in hi-res mode, your Amiga system must have 512K. Once this choice is made and the program is loaded, the user is ready to create.

There are two screens available in the lo-res mode. This allows the user to use one of the screens as a work screen and one for the final picture. Each screen consists of a drawing area; a menu bar on the top; and brush and function icons, and a color palette on the right.

There are ten brushes, varying in size and shape, available at all times. Functions, chosen by the icons, include sketch, spray, boxes and planes; circles, and disks; arcs; paint; zoom; mirror; et. al. Any area of the screen may be defined as a brush - this makes partial copying easy. Once this brush is defined it can be rotated, flipped horizontally or vertically, expanded, reduced, stretched, and bent. A defined brush can be saved to disk for later use. Defining a character from one of the eleven included fonts as the brush allows customization in size and position. A number of special effects can be used, including shading areas, and spreading and blending colors within an area.

While one has a palette of only 32 colors at one time, these colors can be any of the possible 4096 colors available on the Amiga in lo-res display. A window with the array of 32 colors can be called up where the user can choose any of the current colors, or change any or all of them - with the change immediately affecting the drawing. Another feature allows the user to define a starting color and an ending color in the palette, and the computer will generate the shades in between. Another function enables a range of colors to be cycled at various speeds which can be used to create animation-like effects.

Once a picture or design is created it can be saved to the disk and printed. The printer must be defined in Preferences. There are a number of spectacular pictures and brushes on the disk which should start the creative juices flowing. One should also note that digitized pictures can be loaded for alteration with DELUXE PAINT.

There are very few things which are lacking in this program. The few things which I have encountered are: There seems to be no way of changing from lo-res to hi-res without re-loading the program; and that the hi-res operations are visibly slower than the lo-res (but this is only logical, due to the vast amount of information being processed).

Overall, this is a great program for anyone who has an Amiga - from the person who just likes to doodle to the professional artist. Highly recommended. Mark Lofland

SUPER KIT/1541

By

Marty Franz & Joe Peter

- Single/Duel Normal Copier
  Copies a disk with no errors in 32.68 seconds.
- Single/Duel Nibble Copier
  Nibble Copies a disk in 34.92 seconds.
- Single/Duel File Copier
  6 times normal DOS speed. Includes multi-copy, multi-scratch, view/edit BAM, & NEW SUPER DOS MODE.
- Track & Sector Editor
  Full editing of t&s in hex, dec, ascii, bin. Includes monitor/disassembler with printout commands.
- GCR Editor
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- Super DOS I
  Fast boot for SUPER DOS. 150 blks in 10.12 seconds.
- Super DOS II
  Screen on and still loads 150 in 14.87 seconds.
- Super Nibbler
  Quite frankly if it can be copied on a 1541 this will do it! Including Abacus, Timeworks, Accolayde, Epyx, Activision, Electronic Arts.
- M/C & Visa
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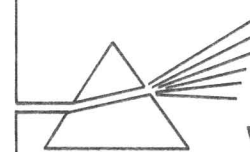

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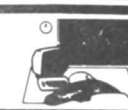


VOICEMASTER Plus: [update #24, p16] $89.95 speech synthesis and recognition cartridge and disk for the C64. By Bradly Stewart and Staff, from Covox. Drive required. Unprotected. 90 warranty, plus updates.

This package is commendable for both its power and ease of use. Like the original Voicemaster, this version lets the user wedge new BASIC commands into their C64 that allow the computer to synthesize, recognize, recreate, store, and recall sound patterns. No hardware is required once the sounds have been created and stored, so they can be recalled and recreated independent of the cartridge.

The speech recognition program allows the C64 to respond to different sound patterns. Thirty-two "words" can be in memory at one time, and other sets can be saved to disk.

This new version also includes modules for music composition and tonal recognition. Hum-Along helps you train your voice by displaying musical notes as you hum or whistle so you can see the difference between a B-sharp and a C-flat - even if you can't hear it. Once you get good at sounding the notes, you can compose songs by singing into Composer. As you sound the notes, they will be displayed on a scrolling musical staff. You can rewrite, edit, save the score, and then play it back using a variety of instruments and tempos. The final program, Print-Song, will print your score using standard symbols.

The original Voice Master cartridge plugged into the user (RS 232) port, which made it difficult for modem users. The new version plugs into control port two and comes with a combination earphone-/microphone headset. The program disk also includes several application programs which you can use as a valuable reference when writing your own BASIC programs.

Perhaps the most surprising fact about the new version of **Voice Master** is the price is the same as the original. Owners of the original version can upgrade for $44.00.

I have two complaints with Voice Master. First: The two manuals are softbound and printed on newsprint. The 34 page main manual, covering speech recognition and synthesis, contains a table of contents, but no index. Information on the musical programs comes in a second 8 page manual. I would rather see a single, better, manual. Second: While the new headphone/microphone combination is much better than the original, the headset has a weak point. The pivot connection for the microphone is a plastic ball and socket. It does not move as smoothly as it might, and is liable to snap if forced.

The sound quality of the new version of Voice Master, although still a bit raspy, is better than the original. It can be improved by carefully articulating your words and phrases. Also, be sure to ask for the Covox booklets titled Learning BASIC with Voice Master. They are free and contain valuable hints, examples, and suggestions not found in the user's manuals. Compared with other popular speech synthesizers, I found Voice Master's sound easier to recognize and far easier to use. Recommended. Gary V. Fields

MAGIC MOUSE:$49 three button mouse and graphics software for the C64. By Ideal, from Contriver Corp. One year limited replacement warranty on mouse, no warranty stated on software.

First, the mouse: It is big, bulky, heavy, and you cannot see the three buttons on the front (colored red, blue, & yellow.) 12oz, 5"l x 3 1/2"w x 1 7/8"h. It is functionally incompatible with the Commodore 1350 mouse, so you cannot use it with Jane, Doodle, Blazing Paddles, or whatever. Two trim screws on the bottom need to be adjusted every time you use it to make it hit all points on the screen correctly. The cord comes off the side, rather than the front, of the mouse.

The software: Very decent. It includes a hires drawing program, sprite

designer, icon designer, and an machine language driver for using the mouse in your own programs. All the programs seem to work, although the pointer is slow to respond to the mouse and control is not very fine. None of the programs use all three mouse buttons.

This mouse and software really seem well built, but poorly designed; and it is not compatible with other third party drivers, so I must say it is Not Recommended. Tim

MIGHTY MOUSE: $55 two button mouse for the C64 and C128. By Ideal, from Contriver Corp. One year limited replacement warranty.

This little mouse has a nice feel to it, is compatible with Jane, Doodle, Blazing Paddles, etc. It seems fairly solid. The two buttons are on top, which is nice. 3 1/2"l x 2 3/4"w x 1 1/2"h. The only problem is that it does not plug in directly, but through a supplied adaptor - which just adds to the cords and the space it takes up. Also, in addition to the rubber roller ball, it has four little metal supports set in the bottom of the case. These may, after a time, mar your desktop. There aren't to many mice on the market, so not much to compare it to. This one doesn't excite me, but it works and is compatible. So..Average. Tim

The REUNION: $29.95 serial line selection box for VIC, C64, & C128. From HyTech Industries. One year warranty.

This little black box makes it easier for owners of two computers - VICs, C64s, and C128s - to switch back and forth between them. Measuring 11cm x 10cm x 4.5 cm, it has one serial port and two serial cables on the back, and a selection switch on the front. Simply plug the cables into your two computers and your own serial cable from your drive into the port. That's all there is to it. The button selects which computer will have control of the serial line.

The unit we recieved has stood up to long periods of use with no problems. However, there is a catch: The interface does not account for video connections. If you use, or would use, two computers with one set of peripherals, this can be really handy. Recommended. Neil Philips.

HUSH 80 CD: $99.95 thermal dot matrix printer for VIC 20 through C128 computers. From Ergo Systems, Inc. 90 day limited warranty, stated rates for repair/replacement after warranty.

This little printer offers standard, expanded, condensed, lowercase/uppercase, uppercase/graphics, and inverse characters; 4 1/2 or 6 lines per inch; character tabs; and a full featured graphics mode. The printhead matrix is 5 x 7 dots in alphanumeric mode, 6 x 7 dots in graphic mode for 80 columns. Graphic linefeed is 1/9". Print speed is 80 characters per second, bidirectional text. Condensed print is half wide, 160 characters per line. It takes 8 1/2" thermal roll paper. It weighs 25 oz., a full roll of paper weighs 11 oz. 11 2/3"W x 5 1/2"D x 2 3/4" H. Standard CBM character set. Integral CBM serial cable. External power supply. And boy, is it quiet! For a first, low cost printer, or as a second printer after a daisywheel, this one is nice. And it works fine. Just remember to consider the cost of thermal paper, and that rolls don't have perforations every 8 1/2". Recommended. Tim

TRIO: $49.95 Integrated wordprocessor, spreadsheet, database on disk for the C64 from SoftSync. (Also to come out for the 128.)

This decent little package works well, has no major bugs, and does exactly what it says it will do. Unfortunately, it really isn't all that much. The concept and design are good, but it just a little bit too slow, a little bit to small, and a little bit too cumbersome. It is very limited to the size of the 64 and it relies heavily on disk access for its integration. Each segment has all the essentials but not much more. It has only one (very) major flaw: the spreadsheet is laid out with numbers designating both columns and rows. This makes it hard and confusing to reference cells. AVERAGE. Tim.

PERSONAL ACCOUNTANT: $34.95 personal bookkeeping package for the C64 on disk. From SoftSync. 90 day media warranty. Unprotected.

It is not big. It is not fancy. But it is easy. It is fairly versatile. And it works. I did not push it to its limit, but I did try everything it offered to some length.

PERSONAL ACCOUNTANT keeps a double entry ledger for a large number of a variety of accounts on disk. For every entry you must give the date, the amount, and the two accounts which the transaction affects. You can have up to 144 (disk limit) different accounts, typed as deposit, loan, income, or expense. Transactions can affect any two. The program will generate a report based on any one, almost any combination, or a whole set of accounts. A wide variety of printers are supported, and modification of the printer driver is possible. All in all, a very decent product. Above Average. Tim

NEWSROOM: [update 29:12] $60 newsletter text and graphics program on disks for the C64. From Springboard. DOS protected. Money back guarantee.

I have just read the review on Newsroom and would like to tell people about one characteristic that makes this program unuseable for newsletters: The printing is so bad that you turn your NLQ printer into a 1525. Our club exchanges many newsletters and the articles that were done by Newsroom are best described as nearly illegible. I would say this program is Not Recommended. Tom Pounds. Rockville CUG.

ATTENDANCE PLUS, REPORT CARDS PLUS, & SCHEDULING PLUS: $850 (per unit) school record maintenance programs for CBM, C64, or C128. On 8050/8250 or 4040/1541/1571 disks. From Redicker Software. Unprotected. Full money back satisfaction guarantee.

ATTENDANCE PLUS, REPORT CARDS PLUS, and SCHEDULING PLUS are three stand-alone or integrated school administration programs that we have found to be the best value for the cost. The purpose of the integrated programs is to provide total attendance record keeping, reporting, scheduling for junior and senior high schools. We perform all three functions for our building of some 900 students, grades 6 through 12. I am not sure of the total capacity of the programs, but they depend on disk capacity rather than computer memory.

The programs are extremely well done and show an excellent understanding of the problems with attendance, scheduling, and reporting. As would be expected, there is a great deal of work to be done to create the database of students that the programs use. It is only entered once and yearly grade advancement is done automatically. Some planning is necessary in advance to insure that the classes and grades can be followed by all the programs. The instructions are very clear so, with a

complete reading, there should be no problem. We have had many modifications made to satisfy particular problems we have in our school. Mr. Rediker has been understanding and able to meet our requests. His fees are reasonable and expected for custom programming. I can safely say that anyone who purchases an administration program from the more visible vendors could NOT get the custom changes done as we have, and still preserve the programs for the annual updates Rediker offers - I have personal experience with Mount Castor Industries. Our biggest concern was COST. Rediker Software is available for $850 per unit (Attendance, Reporting, Scheduling). I recently attended a local workshop using the IBM System 36 and PC's to do the same thing in a nearby Vermont school. They have invested about $100,000 and budget $40,000 yearly for maintenence and upkeep to the system, and produce no better information than we do with our Rediker software.

Last year, using the Attendance Plus portion and the tracking functions of the software, along with a group of concerned teachers, we were able to increase our attendance in grades 8-12 by three percent. Each student who was becoming an attendance problem was identified and the parents were notified with a customized letter stating the problems as we saw them. We raised our overall attendance from 91% to 95+%. Four percent may not seem much to those not familiar with school aid, but it means a LOT of money to us. The software did not do it all, but it provided us with information we never had access to before. Our grade reports to the parents are professional, with comments, grades, and a full attendance summary on each. They are done totally in-house; no pre-printed forms to buy. The programs carry a full database for all the students and allow a large number of additional fields for local information and sorting.

Last summer was our first experience with scheduling our grades 9-12 using Scheduling Plus. We scheduled all 600 students into a cycle-schedule day (4 day cycle - 7 sets per day) totally using our 8032/8050 and Rediker software. Previous to this we used a local co-op service do our scheduling and at times felt we had lost control of the whole thing. No more. Once we had designed our master schedule and entered the course requests we knew exactly the number of sections to plan. Failures were no problem. They were moved into the classes they needed. We ran our conflict matrix, cleared them, and in two 7 hour days we had them all scheduled. Because of the number of class sections we had it was necessary for us to run the non-compiled version which was a bit slower; it might have taken only one day otherwise. Using the co-op service we filled in forms and sent them in and waited. We got back the conflicts, resolved them and returned the forms and waited. We sent in the failures and new entrants and waited. Each wait was from 5 days to 2 weeks between runs. We were able to do it in two days, know exactly how many in each section at any time, change anyone at any time and, best of all, we saved our $4000 co-op charge!!!

Is the program perfect? Not yet, but close. The biggest problem is our 32K PET and slow disk access. The PET is very disk-intensive with lots disk swaps to get programs going. The latest revision to the programs allows report cards to be printed in about 1 minute each - including address, grades by quarter, two comments for each class, up to 12 classes per student, attendance for the period selected and year to date. All on our 8023P! For 800 students, one report card per minute may seem slow, but talk to anyone doing their own report cards. Remember, no pre-printed information at all. We get two systems going for our reporting (two computers, drives, printers), run grades six through nine on one and ten through twelve on the other, and we are done in 9 hours!!!

Any problems with the operation have generally been hardware related - a slow disk drive, a printer that could not

follow directions, and so on. The programs are quite bomb proof. Data entry is easy and can be done by any clerk or aide who can type. Are we sold? If you have a 32K PET, a 64, or a 128, and want to make administrative tasks easier and better, call 413-566-3495 and talk to Rich Rediker in person. He will answer, as he is on leave from his teaching position to finish the last part of the program - the IBM PC version of all the above!! If you have your IBM or clone ready to go, or if you can wait for the Commodore PC 10 or PC 20, and you want to make your Superintendent, teachers and guidance department happy, get on the phone now!! Even if you use your co-op service or Westinghouse or any other outside processing service, I bet you can save money AND have local control over your data and do it faster with these programs! Rich guarantees it or your money back. Highly Recommended. Bob Bergevin

CP/M PROGRAMS

PERSONAL INVENTORY/SilverFolio: $39.95 personal portfolio inventory on Kaypro IV disk for CP/M 3.0 on the C128. From CardCo, by SilverSoft. Unlimited time media warranty, other warranties disclaimed. Unprotected.

It takes a little getting used to - like using <CTRL> H to backspace - but this program nicely takes information on your assets (computers, cars, appliances, savings accounts, etc.), your liabilities (loans, mortgages, etc.), and, upon request, comes back with a report of your net worth. It is handy for this and for keeping track of serial numbers, how much you paid for whatever, and depreciating whatever will last long enough. It will print a variety of reports even to my Commodore MPS 803.
It does rely alot on disk access, but what the heck, that is what CP/M is all about. And the 1571s make it quite bearable. Being that it is not protected, you pip the program over to your own disk. You can keep a good bit of data on the same disk as the program disk, to keep from swapping. Still, it helps to have two 1571s.
Most amazing is how easy it is. Sit down, glance at the book, and follow the prompts. That is about it. Try it once to get used to it, then do it once for real and you will have no problem. The only oversight I noticed is in the installation (configure) procedure. The program is generic CP/M, slightly modified for a Kaypro IV system. The CONFIG module will ask you if you have a color system. When you tell it that you do, it turns around and tells you that you don't and then goes on to the next question. I can live with this. Considering what it does, it is not much work, and worth it. Recommended. Tim.

PERSONAL \CCOUNTANT/SilverBudget: $39.95 home budgeting package on Kaypro IV disk for CP/M 3.0+ on the C128. As above for Personal Inventory.

All the general comments from above apply. The main difference is that this package is a bit more involved. It takes information on: Cash, Checkbook, Credit Card, Asset, Liability, Income, and Expense accounts; adds it all up, shakes it all down, and tells you how you are doing. Specifically, it asks for a budgeted amount for each of however many subcategories you set up for each of the above (e.g. Income: Salary, Interest, etc.; Expense: Rent, Car Payment, Food, etc.). Then you go back every month and enter the actual amounts. Add it up, shake it down, and dump it to screen, printer, or disk. Again, very easy and informative. I like it. Recommended. Tim

TIME MANAGER/SilverCalendar: $39.95 scheduling utility ... as both of the two above.

Again, very similar to the above, but starting to get convoluted. It seemed to be a bit slower and to require more module switching, more updating of files, and more structure to enter. What it does is schedule Items (either people or things - such as cars) for Events and Things to Do. It does it all by date, and each date is kept on disk. Thus it is back and forth to the drive alot. It does work, and it will generate a variety of reports by Item scheduled or Activity Type, but it all seems a bit too slow and a bit too cumbersome unless you really need to schedule alot of people and things for alot of events. It is not quite torturous, but I question its value to most users. Average. Tim

VIZAWRITE CLASSIC: [update 31:2, 30:13] $89.95 wordprocessor on disk plus ROM cartridge for the C128. From Viza Software, distributed by Solid State Software. NOT DOS protected. Licensed. 15 day money back guarantee. Updates.

First: The disk is NOT protected, contrary to what was stated in the previous two issues. Second, version 1.4 has all the major, and most, if not all, the minor bugs removed. Although it is still a little bit slow, and I will never like the delete key, it is a very powerful and easy to use wordprocessor. Highly Recommended. Tim

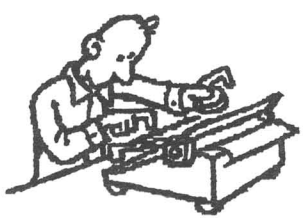
SPELLBREAKER $39.95 expert level fantasy adventure on disk for the C64. From Infocom.

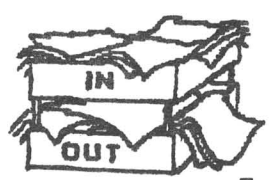
SPELLBREAKER. The final chapter of the Enchanter trilogy, Infocom promised that this would be the hardest, most intriguing, of the three; they didn't disappoint us.

Having disposed of Krill in Enchanter, and rescued Belboz in Sorcerer, you have been promoted to leader of the Circle of Enchanters. Suddenly, however, all the magic has become unreliable and the Circle is depending on you to prevent the ultimate evil catastrophe! All the skills you have learned since you first found yourself on that strange road near the deserted shack will come into play as you try to solve this game. Some of your old favorite spells are here as well as plenty of new ones to enter into your spell book.

As with the first two parts, there are no really complicated mazes in Spellbreaker, but it really doesn't need them. Map-making is relatively simple as the action takes place in a number of seperate locations, each one consisting of from three to 10 rooms. There are three particularly diabolical puzzles and dozens of thought-provoking ones in this game. A good barometer of the difficulty of an adventure game is the amount of activity it generates on the Gamer's Forum on Compuserve. This one was the subject of discussion and pleas for hints for several weeks....to the exclusion of almost any other adventure game!

Dave Lebling, (who co-authored Enchanter as well as all three Zorks and was the author of Starcross and Suspect) has written a fantastic end to the Enchanter Trilogy. Highly Recommended. Art Lewis Kimball





STAR TREK-THE KOBAYASHI ALTERNATIVE: $39.95 science fiction adventure on disk for the C64. From Simon & Schuster.

After literally hundreds of Star Trek clones - which never quite met the standards of the trekkie - the real thing is here at last. Unfortunately, there is bad news along with the good news. The good news: This IS Star Trek. It's all here; the Enterprise, the bridge, sick bay, transporter room, engineering, even Kirk's quarters...and you can visit them all. The crew is all present and accounted for. Well, MOST of the crew. It seems Mr. Sulu is missing, and that is the heart of the adventure. Sulu, in temporary command of the USS Heinlein, has vanished in an area of space that is only partially mapped. Your mission is to explore that area, contact any sentient beings you might encounter, and find Sulu. There are a number of planets to explore; (Yes, you'll be able to use that famous phrase, 'Beam me down, Scotty' at LAST!) Some of them will yield important clues, others will be red-herrings, and still others may put you in very real danger.

You can pick your own landing parties depending on your needs. The screen display consists of three parts: The upper portion of the screen will show you computer readouts, results of scans, and responses from your crew members. The center section is where you enter your commands, and the bottom section which gives technical information about position, heading, status report on engines, weapons, shields etc.

Your own movements are controlled by function keys and cursor keys, and you manipulate your crew by giving them orders. You have complete movement around the ship as well as on the planets.

The bad news. The game is RIDDLED with bugs and undocumented situations. For instance: As the game begins, you find that the shuttle has been damaged. You should be able to get it fixed when you reach the proper planet...but it can't be done because of a bug. One undocumented problem caused me hours of frustration. When you set and execute a course for a planet..DON'T TOUCH ANYTHING UNTIL YOU GET THERE! I though I could pass the time by getting some information from the computer....well if you touch ANY KEY before reaching your destination you abort the function. This is not documented ANYWHERE!

There are many other bugs...some serious and some merely frustrating. It is hard to believe that this was ever game-tested. If it was, apparently someone didn't read the testers' reports!

The story-line is very good, the puzzles are intriguing and well-done, and the adventure is VERY true to the Star Trek philosophy....however the bugs and poor documentation make it hard to recommend. There is a rumor that the game is being re-done. Hopefully the new version will live up to the potential. This version is Not Recommended. Art Lewis Kimball

BALLYHOO $39.95 standard level mystery adventure on disk for either C64 or the Amiga. From Infocom. DOS protected.

BALLYHOO is the fourth mystery adventure released by Infocom, and is, in my opinion, the most enjoyable by far.

This one is designed to recall childhood fantasies that many of us had about running away to join the circus. You will find yourself taming lions, walking the tightrope, calming a raging gorilla, playing the clown - all those things you dreamed about but were never able to experience. Along the way you will be solving a crime and recovering the kidnapped daughter of the circus owner.

The reason this is more enjoyable than the previous mysteries is that it plays differently. In previous mysteries the successful solution depended, in large part, on your being at the right place at the right time, and almost always asking EXACTLY the right question of the right person. Many times it came down to a matter of syntax. If you didn't ask the proper question in the proper syntax, you wouldn't get the information you needed.

In Ballyhoo, you are more or less on

your own. The clues are there for the finding, and although you DO have to interact with other characters in the game, you are more dependent on your OWN skills.

The puzzles are cleverly drawn and logical. There is only ONE maze to be mapped and the rest of the action takes place in a fairly confined area, so you won't spend much time making maps. The characters are clever and fun.

As with most of the later Infocom games, you must have the goodies that come with the game in order to get some needed clues and vital information that can't be gotten anywhere else. Highly Recommended. Art Lewis Kimball

HARDBALL: $19.95 arcade game on disk for the C64 from Accolade. DOS protected.

Provides good head to head competition using two joysticks. Good playing options and good simulation. The excellent graphics are similar to Coleco's Baseball, but probably not quite as good as the Magnavox Oddessy Baseball. Overall though, this probably is state of the art and worth the purchase price. The load time is unusually long, but the graphics, options, and quality of play make the wait worthwhile. The joystick response in relation to the action is reasonably good. Recommended. Harry Metz.

SOLO FLIGHT: [update #21, p30] $34.95 flight simulator, with speech, on disk for the C64. By Meier, Irani, and Kutcher. From MicroProse. Joystick optional. DOS and password protected. 90 day free backup, $10 thereafter.

If you've never flown a flight simulator before, Solo Flight is perfect for you. Its controls are logically located and easy to master, the simulation is realistic, the graphics are well done, and the inclusion of a trainer mode with speech is ideal. There are different airports to fly between as well as the Mail Delivery game, so Solo Flight will be a pleasure for years to come. (But, if you have the earlier version of Solo Flight, I suggest you spend your money on MicroProse AcroJet instead.) Solo Flight is for the beginner wanting to earn their wings. If you want to experience the pure joy of soaring among the clouds, Solo Flight is hard to beat. Recommended. Gary V. Fields

ASTROLOGY HOROSCOPE MAKER: $19.95 astrology aid on disk for the C64. From Navarone Industries, Inc. 90 media warranty, other warranties disclaimed.

This cheap little program appears to do exactly what it says it will and nothing else. The program is very unprofessional in spite of the nice packaging. The input routine is poor and undocumented. Once you get the data in, the program will evaluate it on your choice of one of several different house systems including Meridici, Regiomontanus, et. al. They all produce numbers. By saving the numbers and loading another option it will print a map of the zodiac; then you are on your own to interpret it. The whole program is ported over from PC-DOS and it shows; the manual says nothing about Commodore. Not recommended. Tim

WORLD GEOGRAPHY: $24.95 educational game on disk for the C64. From BOBCO. 90 day media warranty. Keyboard optional. DOS protected.

Just like it sounds, this program helps teach world geography. The program shows a flashing point on an area map and on a globe map, and a flag in the corner of the screen. The player must identify the country, capital, population, language, and currency from a selection of three choices. A clock counts down from 100, and 10x the time remaining points are awarded on each question for a correct

answer. Players may select one of three geographic areas - American and Pacific; Eurasia; and Africa - or the whole globe on which to play. There are three levels of difficulty, plus a review mode. It can be played by one or two players with joystick or on the keyboard.

It is a nice little program with good sound and graphics. A globe spins in the top right third of the screen while the program searches the disk for the regional map and the information on the next country. The disk access is fairly quick. It is probably good for around grades 5 and 6. The only weakness, not a flaw, is in the concept: It can get easy to guess pretty accurately in some areas. Small islands in the Pacific are not going to have populations in the tens of millions. Also, I could not get it to load correctly on either 4040 or early revision 1571 drives. Other than that, it is a very nice educational game. Recommended. Tim.

ELECTRONIC VOCABULARY TUTOR: $7 [cost plus, including postage] foreign language drill program on disk for the C64. From Scott Adams. Unprotected. No warranty.

This program is a framework for a self constructed study of English, French, German, and Spanish. You create a list of words and their meanings and then study them like you would flashcards. It is easy to use and contains some nice features. Full character sets for the foreign languages (accent, grave, caret, cedilla, umlaut, and tilda) are included.

Each vocabulary list can contain up to 24 words of the same language, with up to 78 such lists saved to disk. For English words the answer would be the definition; for foreign words it would be the English translation. The questions come up either way: word/definition or definition/word, etc. Score is kept constantly.

Although it sounds simple, the program is well thought out and comes with a good user's guide. One problem is that when answering with a definition, it must be exactly as in the list. You may skip a question or ask for the answer, and this is accounted for in the final score.

The creator is selling the program on a cost-plus basis. He asks you to send him whatever you think it is worth after using the program. If you need additional capabilities or want to make changes to the program, he is willing to make changes and to release and explain the source code. Recommended. Neil Phillips.

Expand
Past
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Capacity!
The Transactor
The Tech/News Journal For Commodore Computers
At better book stores everywhere! Or 6 issues delivered to your door for just $15.00 (Overseas $21 U.S. Air Mail $40 U.S.)
The Transactor, 500 Steeles Ave. Milton, Ontario. L9T 3P7.
416 878-8438
Also check out The Transactor Disk and The Complete Commodore Inner Space Anthology - to us, expansion knows no limits!

BOB'S TERM PRO $59.95 terminal emulation package on disk for the C64. By Bob Lentini, from Progressive Peripherals. Disclaimer of warranty. DOS protected.

This is a very nice, full-featured package. Full support for Westridge, Mitey-Mo, HES I & II, Master Modem, Hayes Smart, and all Commodore 16xx series modems. Punter, Xmodem, ASCII, and binary transfer; XON/XOFF, IMG, and DC1/DC2 capture with the option to view the transfer on screen and to up/download to/from either buffer or disk. The 28,500 byte buffer may be filled from keyboard, disk, or from a specific byte of a SEQ file. Partial dumps and buffer markers are supported. Transfer rates of up to 2400 bips are supported, printers up to device #7, secondary address up to 31. Seven built in and 3 user defined fonts, but standard C= character set is not one of them. Disk utilities include prg/seq, img/prg reverses. Disk based directories. Macro strings. Full featured remote control. Split screen entries for CB/conference. Printer streaming. No VT52/VT100 or Televideo. Full control over modem parameters - 110 to 300 baud, and fine tuning of 1200 & 2400 baud modems.

It works well and is very easy to use. The program disk must be in device 8 for all the features to work. It supports device 9 on request. I like just about everything except the character sets. Highly Recommended. Tim

LYNKER 1200 MODEM $200 (?) 300/1200 Baud Hayes Compatible Modem for C64/C128 from Progressive Peripherals.

Lynker's 1200 Modem seems to be a good alternative to the Hayes Smartmodem 1200 at a reasonable price. The modem connects directly to the C64/C128's User Port via a 6 foot shielded cable. It is Bell 103 and 212A compatible and operates in half and full duplex asynchronous modes.

The attractive beige plastic case features the same 8 status LEDs as the Hayes in the same order as Hayes'. These include Modem Ready, Terminal Ready, Send Data, Receive Data, Off Hook, Auto Answer (enabled) Carrier Detect and High Speed (enabled). Also on the front panel is a recessed volume control. The speaker feeds through the bottom of the unit. All connections and the on/off switch are on the back of the unit. Why both Hayes and Lynker chose to put the on/off switch in such an inconvenient location is a mystery to me...The Signalman modem features a much more convenient front-panel switch.

Most of the Hayes commands are supported and a couple of commands are added for those who use their computers for Ham Radio. These include commands to send standard Morse 'dah' (62ms/1270 Hz) and 'dit' (186ms/1270 Hz) - each followed by 62 ms of silence - and to cause a 125 ms (standard) pause between each Morse character. This is a very handy combination of features not found resident in any other modem I've seen.

A set of 8 DIP switches on the bottom of the case control Command Code return, Auto Answer, Carrier Detect, DTR true or false, and single or multiple line use.

I used this modem with a Commodore C128 from a General Telephone line in rural Illinois. General Telephone access is a true test of ANY modem or telecommunications package. If it can get through THIS system it can do ANYTHING! In tests using Vidtex, Proterm64, and several different public domain C64 and C128 terminal programs, I found that the Lynker operated fully as well as the Hayes Smartmodem 1200. I was unable to configure the Q-Link disk to use the Lynker Modem, but that program seems to have trouble with almost all Hayes compatible modems.

In autoanswer mode with a C64 and the STARSHIP MPCBBS (Punter BBS64.3) the modem performed perfectly in both 300/1200 baud mode. Only time will tell if this modem will stand up under constant use the way a Hayes Modem will, but it seems that for initial performance this is one of the FEW Hayes 'clones! that REALLY performs like a Hayes! Recommended!-Art Lewis Kimball

RESOURCES:

Accolade Entertainment Software 20863 Stevens Creek Blvd. Cupertino CA 95014
Navarone Industries, Inc. 510 Lawrence Expressway, #800, Sunnyvale CA 94086
Robert W. Baker, 15 Windsor Dr. Atco, NJ 08004
Rediker Software, 67 Genevieve Dr., Hampden, Ma 01036
Covox Inc., 675-D Conger Street Eugene, OR 97402
MicroProse Software, 120 Lakefront Dr, Hunt Valley MD 21030
Softsync Inc., 14 East 34th St. New York, NY 10016
Dane Final Agency, 1154 C. Westlake Blvd., Westlake Village, CA, 91361
Progressive Peripherals & Software, Inc., 464 Kalamath St. Denver, CO 80204
Starpoint Software, 122 S. Broadway, Yreka, CA 96097
Michael Keryan, PO Box Tallmadge, OH 44278
Springboard Software, Inc., 7807 Creekfridge Circle, Minneapolis, Minn 55435
SM Software, Inc., PO Box 27, Mertztown, PA 1539

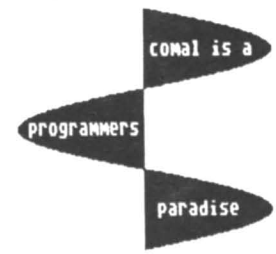
* If you don't have COMAL yet, order a Programmer's Paradise Package-$19.95. It includes the complete COMAL system plus over 400 pages of information. Add $5 more to get our 20 interactive lesson Tutorial Disk. Add $2 shipping. Visa/MC or US funds check accepted. Send to:

COMAL Users Group USA
6041 Monona Drive, Room 115
Madison, WI 53716
phone 608-222-4432

Easy Curves

1) Insert your COMAL disk in drive*.
2) Type LOAD "C64 COMAL*",8
3) Type RUN (starts COMAL)
4) Type AUTO (turn on auto line#'s)
5) Enter the program lines shown below (COMAL indents lines for you)
6) Hit RETURN key twice when done
7) Type RUN

```
0010 setup
0020 curve
0030 paint'it
0040 add'words
0050 //
0060 proc setup
0070   black:=0; yellow:=7
0080   background black
0090   pencolor yellow
0100   setgraphic 0 //hi res screen
0110   hideturtle
0120 endproc setup
0130 //
0140 proc curve
0150   moveto 110,0
0160   drawto 110,199
0170   for row:=0 to 10 step .03 do
0180     drawto 110+99*sin(row),row*20
0190   endfor row
0200 endproc curve
0210 //
0220 proc paint'it
0230   fill 120,20
0240   fill 100,90
0250   fill 120,180
0260   fill 100,198
0270 endproc paint'it
0280 //
0290 proc add'words
0300   pencolor black
0310   background yellow
0320   plottext 120,155,"comal is a"
0330   plottext 16,90,"programmers"
0340   plottext 120,30,"paradise"
0350 endproc add'words
```



Notice how easy graphics are in COMAL. Lines 70-100 set up the screen colors. Lines 150-190 draw on the screen. Lines 230-260 fill (paint) whole parts. Even putting text on the graphic screen is easy. See lines 320-340. All this is standard and built in as part of COMAL. Plus a full turtle graphics system. Now you know why there are 100,000 users.

AMSAT VR85: $30 satellite tracking utility on disk for the C64. From AMSAT. Not protected. Media warranty.

This program is primarily for radio amateurs that are communicating via satellites or the space shuttle. At the moment, there are three satellites which may be used. Additional launches are planned for later this year and next. The program will keep track of up to fourteen different satellites at one time. It provides for azimuth bearings and elevation angles for directing or pointing an antenna, distance to the satellite, and times of passage. The information is updated, as desired, in seconds (i.e. for the space shuttle) or selectable minutes (for polar or elliptical orbiting satellites).

For the non-radio amateur it can provide detailed tracking data on space shuttles. There is a map tracking dsiplay of he world in a mercator projection with the shuttle/satellite shown upon it in real time. This would be a useful demonstration in a school science class. Recommended. Chuck Dorian.

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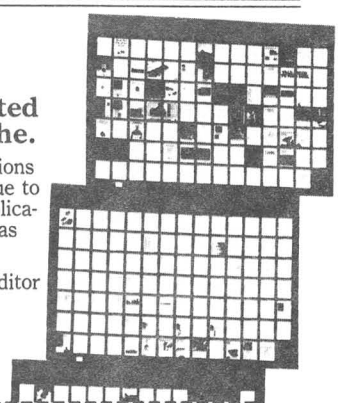

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DI-SECTOR 3.0: $39.95 copy program on disk for the C64 and 1541. From Starpoint Software. Not Protected.

1. Protected disk backup. It will copy a disk in two minutes on a single drive. I wish that you did not have to swithch the disks five times...six times if it needs extra parameters.
2. Unprotected disk backup: 90 second single drive copy with only 3 swaps.
3. Fast file copier. This one has to be seen to be believed!
4. Machine language monitor. Three versions, residing at $8000, $A000, $C000.
5. Sector editor. The best I have seen. View BAM, edit sectors; two displays: text and hex.
6. Format editor. This will allow you to look at the new protection techniques. You can write errors to the disk, repair a track of read errors, lock/unlock disk.
7. Art's Backup. To copy Electronic Art's programs. First use the protected disk backup utility, then run Art's Backup for a five second fix and booter.
8. Warm start to BASIC.

Only one complaint: A graphic display loads every time you leave one option for another. This is time consuming. Other than that, it is one fantastic piece of software. Highly Recommended. William H. Lambdin.

MATRIX: $59.95 programming aid on disk for the C128. From Progressive Peripherals. Control port dongle protected. No stated warranty.

Matrix is an handy utility package that allows you to use some of the C128 features in C64 mode as well as some other useful utilities.

Under Matrix control virtually all the C128 keys are available in C64 mode as well as an 80-column screen and 2Mhz fast speed. In addition to this, an Autobootmaker is included in the package that enables you to make your most-used software auto-boot and run in C64 mode

just as it does in C128 mode. On top of this, a Fastload utility will enable most programs to load much faster.

There are two copy programs on the disk. 1541 Turbocopier will copy a disk (even some protected software) on a 1541 in under three minutes. The manual warns that this copier will not work reliably on early versions of the 1571 and it did not work on mine. For 1571 users the 1571 Burstcopier will copy single and double-sided disks and will even make a double-sided copy from a single sided disk! Most 1571 disks will be copied in one pass, enabling you to make multiple copies of a disk without reading the original each time.

The FAST feature speeds up basic programs remarkably, as long as there is no disk access in the program. Due to the fact that the composite screen cannot operate in the fast mode, the screen will be blanked during FAST operation if you are in 40-column mode, but will be turned back on after execution of the FAST mode is finished. This is great for sorts, etc within programs. The FAST mode can also be enabled/disabled at any time by use of the TAB key.

There is a directory management program that allows you to scratch, recover, and rename files; move listings around; initialize or reset the disk drive and format or validate a disk. A full-featured sector editor is also included in this section of the program.

A very powerful Autoboot maker allows you to make autoboots for C64 and C128 programs, allowing you your choice of using the fastloader and also where in memory to place the autoboot. Autoboots can also be made which allow your choice of which of several programs to load. For C64 mode autobooters there is an option to tie the autoboot to the reset button.

There is a simple editor included for those who want to write their autoboots in machine language.

A couple of other VERY handy utilities included are: Old Maker, which put a 1-block program on any disk that enables you to recover after a 'NEW'; Boot Saver which enables you to use the boot program on a disk outside of Matrix control; and The File Collector, which allows you to combine multiple file programs together into one file.

The Matrix disk is completely free of copy-protection. PP&S is apparently one of a growing number of companies heeding the complaints of users about not being able to back up their software. A dongle is included and must be used in Joyport 2 to enable the program.

It should be pointed out that nearly all the routines found in MATRIX are in the public domain. Programs that accomplish most of the features can be found on CompuServe, Q-Link, many Commodore Bulletin Board Systems and in most User Group Libraries. With that in mind, it seems that the retail price for MATRIX is excessively high. It seems to me that this package would be a good value at $29.95 for those who want all their utilities in one package and don't have access to PD software. My initial reaction was to recommend this product but after learning the retail price I have to withhold a favorable recommendation until the price comes down to a reasonable figure. -Art Lewis Kimball

1571 PHYSICAL EXAM $39.95 disk drive alignment and speed test disk for the C1571. From Cardinal Software.

Cardinal's 1541 Physical Exam has become an indispensable tool for 1541 Disk Drive owners. Of the several drive testing programs available 1541 Physical Exam is the most straightforward and by far the most dependable. Approximately one minute after loading the program you have a complete picture of the health of your disk drive. A periodic check can tell you in advance if your drive is starting to go out of alignment or change speed, and allows you to take steps to correct it before any of your data is lost by being written to disk on a badly aligned drive.

The manual even includes comprehensive instructions on how to align your own drive.

All this is now available to owners of 1571 Disk Drives. Since the 1571 is not belt driven and the speed control circuitry has been improved, speed changes are rare. In fact, Commodore did not even allow for user accessible speed adjustments. A vastly improved power supply (less heat) and an electronic track one sensor rather than "head banging" all mean that alignment problems that plagued the early 1541s should not occur in this drive. But problems do occur with age and use and it's a good investment to have one of these programs around to keep tabs on your drive's health. A print feature in both 1541 and 1571 versions allows you to compare your drive's performance over a period of time.

The only observable difference between the two versions is that the 1571 version checks both sides of the disk (tracks 1,16,35,36,51 and 70). Each version is drive-specific and no version is yet available to use for both Commodore drives. Recommended. Art Lewis Kimball

SUPER MASTER DISK: $00.00 disk cataloging system on disk for the C64. From Integrated Software Systems.

There are dozens of disk cataloging systems available both commercially and in the public domain. If you are the type that needs to be organized this is about the best one we have tested.

Super Disk Master is an integrated system made up of several sub-programs which give it versatility not found in most of the other programs of this type. Among the features available are a SORTED master catalog of all disks (up to 500 disks) with disk name, id, file info etc.; search and list any file, disk name or id in just a few seconds in seven different ways; change duplicate ids ; etc.

Although it takes a few hours to wade through the instructions and get the hang of all the sub-programs, once you've caught on to the system, cataloging disks is really pretty simple. The system works with one or two single disk drives or a variety of dual drives (MSD, 4040 etc.) Using two drives, of course, makes the work go much faster.

One very nice feature is a sub-program which allows you to catalog those commercial disks which have 'unlistable' directories, or directories which print out as 'garbage' when listed. There is also a file-copy program which will allow you to copy files from one disk to another - they have even included Commodores 1541 Disk Copier program for making copies of the program itself.

As with most cataloging programs, I feel too much emphasis was placed on not allowing duplicate IDs on disks. The program will simply NOT ALLOW two disks to have the same ID. Disks with duplicate IDs CAN cause grief, there's no question about it, but there are circumstances when they are unavoidable and I feel there should be a provision made for this. As long as the two disks with the same ID will never be written to in the same session, there is no problem with duplicate IDs. I feel some provision for this should have been made.

One aggravating feature was a fatal error if you try to enter a disk directory into the program with no disk in the drive. This means you have to wait for the entire program to re-load.

As with ANY disk cataloging program, it is best to start with this when you only have a few disks to catalog and keep up with it. Starting with ANY disk cataloging system when you have over a hundred is a very frustrating and discouraging process! Recommended. -Art Lewis Kimball

RAPIDLOK 64 version 4.0: copy protection and rapid load utility for CBM 1541 disk format C64 programs. From the Dane Final Agency. DOS protected. Guaranteed.

If commercial programs must be

protected then I wish they more were protected like this. We recieved a demonstration disk from the Dane Final Agency, slipped it in the drive, typed <LOAD":*",8,1>, watched eight Doodle pictures flash on the screen, and ended up with a full featured game half a minute after we hit <RETURN>. RapidLok-64 loaded and ran 580 disk blocks - 131K bytes - in thirty seconds. And no drive knock. Nice. Disks protected by RapidLok 64 will not load from a 4040 drive, but seem to work well on the 1571. Regardless of opinions on copy protection, this should be acknowledged as an elegant, sophisticated piece of coding. no comment. Tim.

KLITZING UTILITY WEDGE V 5.6: $FREE public domain utility wedge for the C64. Usually on disk, many bulletin boards, most user group PD libraries, and all the major telecommunications services. By Jim Klitzing. Not protected. Not advertised. Not guaranteed in any way, shape, or form. No implied warranty in any state.

Classy. Not perfect, but classy. This wedge implements all the standard Commodore DOS Wedge commands and: auto number/renumber; disk block read/write; copy/restore file/disk; delete lines; show free memory; koala viewer; show load address; micromon; print sequential file; terminal; un-new; doodle viewer; word processor; lo res screen dump; hi res screen dump; a number of extensions to the standard wedge for handling sequential and user files; and a menu in case you forget the commands. The only thing I could not get to work correctly was the hi res screen dump; everything else worked beautifully. The wordprocessor is especially nice, handling PETSCII and ASCII files for both load and save. The terminal is good as well, and can be handy for calling a board while in the middle of something else. The wedge lives in RAM from $A000 to $CFFF, or thereabouts, and from $E000 to $FFFF, leaving the standard 38911 bytes free. I like it. Highly Recommended. Tim

SHAREWAIRE VOLUME 1: $10 freeware collection of utilities, etc., on disk for the C64. From Serendipity Software. Unprotected. Distributed via public domain channels, with request for $10 contribution in return for printed documention. Various authors.

This disk includes a resident fastload routine, a disk automenu utility, a postage rate utility, return address label printer, a disk enveloper, a function key cribsheet printer utility, C64 BASIC Aid, and a couple of notes to users and to authors. The manual that you get when you send in the $10 is a nice 32 page set of documentation that you need to take full advantage of all the features. The programs work, the documentation is good, and the idea is excellent. Although many of the utilities are available, in some form or another, in the public domain, this is a commendable attempt to bring high quality, low end programs to the users, and to give the users what is better than a money back guarantee by not taking your money until you have seen and played with the product. For users who need a source of good utilities, for programmers who would like to contribute, and for all who want to help get a good idea off the ground, Recommended. Tim

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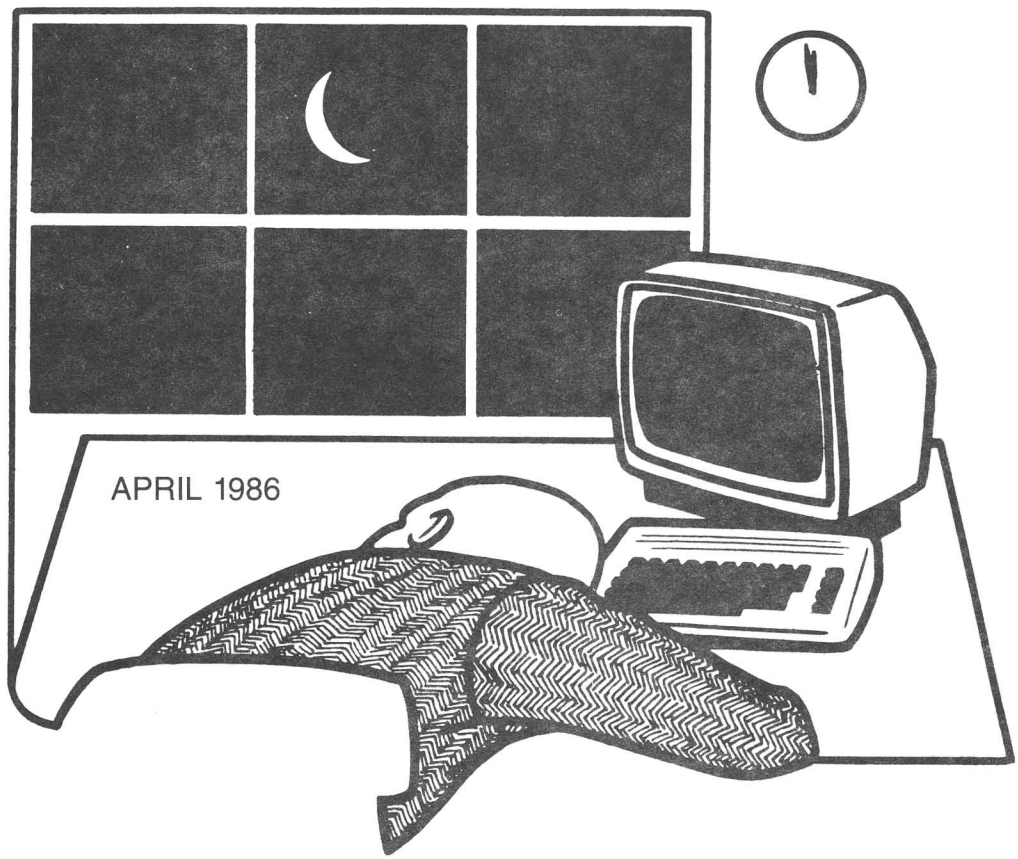
APRIL 1986



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MSD Disk Drive Information Exchange

Now that Micro Systems Development, the maker of the MSD Disk Drives, is no longer making or supporting them, an information exchange is being set-up to serve the needs of MSD disk drive users.The first project is a database of compatible software. Users of MSD disk drives are encouraged to participate in the exchange.

The MSD Information Exchange is a no fees, not for profit user service. Those who contribute information to the exchange will recieve: 1) For a self-addressed, stamped envelop - a printout of available information in one selected category; 2) For a blank disk, mailer, and return postage - a copy of the Information Exchange data disk in Superbase 64 format.

Typical entries in the exchange database include--

WORD PROCESSOR: PaperClip 64, Batteries Included, 64C Edition. SD-2 Fully compatible serial or parallel (Quicksilver interface);

SPREADSHEET: Multiplan 64, Hesware, V. 1.06. SD-2: Partially compatible. PData files may not be saved.

BACKUP: MSD Shure Copy, Megasoft. SD2: Serial Compatible. Parallel: Imcompatible with Quicksilver.

ENTERTAINMENT: Flight Simulator II, SubLOGIC. SD-2: Incompatible

The information exchange will also maintain files on the availabilty of technical information on MSD disk drives including parts, service, service or maintenance manuals, wiring diagrams, memory maps, etc., as provided by users.

Your Assistance in allerting MSD users to the MSD Informatin exchange will be appreciated. Thank you. Paul E. Eckler.

While driving deep into the Black Forest of Germany, our slow and unreliable Volkswagen just started sputtering and then to our dismay, quit running. After hours of unrelentlous tinkering, we were ecstatic to see a strange little creature, known as Hacker Gnome, emerge from behind a tree. Using his infinite wisdom and wizardry he fixed our poor bug and got us speedily on our way. Well, we were so impressed with Hacker Gnome's wizardry, that we convinced him to reveal his secrets for speed and reliability. And we are passing these secrets along to you so that you can write the very best Basic Programs.

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The British Software Market: An Overview

In the past year, there has been an onslaught of North American programs on thte European market. Once unknown names such as Epyx, Electronic Arts, Broderbund, and many more, are now household words. In addition to hailing from this side of the Atlantic, the all have something else in common: their price. In comparison to British releases, they are outrageous. Why is this so?

To understand why most, if not all, North American programs cost a small fortune, one must look closer at the differences between the North American and the European markets. Computers became popular much quicker in the United States than in Britain, but mostly for business use. Everything costs more for business. A database management program marketed for business users will often cost several times more than a similar program of equal quality marketed for home users. So, business users had computers first, software houses got used to marketing to businesses, and the outrageous prices carried over to home computer programs. A $40 (U.S) price tag for a game is not uncommon. This is the North American market. Businesses and home users both plan themselves around it. In Britain, such a price would - and does - seem crazy.

Most companies do not consider how different the British market is. No longer are most computer owners businessmen who can afford a good shoot-em-up. Rather, the majority of buyers are home computer owners. Britain has a much higher percentage of computers in the home than America. The idea of buying software is totally different: Young children save up their allowance to buy something, and businessmen don't add another expense to their books. So North American companies release their product to the British market, but retain their North American

In the end, the consumer and the producer both suffer. The user has to pay outrageous prices and companies lose volume. Mastertronics, a long-recognized British firm, has just started releasing its line of programs for less than $10 in the United States. Though not of superior quality, they should show the North American consumer that prices do not need to be so high. Maybe the presence of these programs will help bring down the price of software. It is about time we had lower, more realistic, prices for the general non-business user. It can work - a look at Britain proves this admirabley. We might have our own separate industry, but we need not ignore a system that works well. With luck and a bit of persuasion, the situation just might change. Neil Phillips.

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Modifying Michael Riley's Paper Mate

by Donald A. MacNeil

Do you use Michael Riley's Paper Mate wordprocessing program on the C64? I have been using Paper Mate since early 1982 and greatly apreciate the fact that this excellent program is written in BASIC, permitting modifications which suit my particular needs. It occured to me that several of these modifications may be of general interest to other Paper Mate users, and I wish to pass them along.

As originally written, whenever the cursor is run back to the top of the screen, Paper Mate automatically clears the screen and prints the previous 23 lines of text. But sometimes scrollling back just one or two lines would be more convenientt and make it easier to keep your place in the text. My modifiying line 1505 in Paper Mate and adding the subroutine (1600-1620, below) you can scroll back and forth through the text. Notice that line 1620 is the same as line 1320. You can still page through text in he usual way with the '>' and '<' keys.

```
1505 IF CP=1 THEN GOSUB 1600:RETURN
.
.
1600 PRINT Q$;R$;:POKE781,0:SYS59903
  PRINT"[HOME][DOWN][LEFT][INSERT]":
  POKE218,132:LN=LN-1
1610 PRINT "[HOME][RVS]"LN
1620 PRINTQ$;L$(LN)Q$;R$"[UP][RVS]"
  Q$;R$"[UP]";:RETURN
```

If you would like a double hit on the home key to get you back to the very beginning of the text with the cursor HOMED, then add the line below.

```
1135 IFG$=[HOME]"AND(CP=1ANDLN<>1)
  THEN LN=1:GOSUB1725:GOSUB2500:
  GOTO1110
```

This next line will enable you to press <RETURN> in the middle of the line you are editing, and have the remaining text to the right of the cursor erased.

```
4521 IFA=95THENPRINTLEFT$(SP$,LEN
  (B$));:B$="'"
```

If you want the remaining text referred to above inserted as a new line after the line being edited, add the line below. Instead of pressing the <RETURN> key, press <SHIFT - RETURN>.

```
4375 IFA=141THENA=13:GOSUB4580
```

Other modifications which you can easily make yourself are having the <F5> and <F7> keys page back and forth through text, and have <F1> return to the command menu. All that is required is that those keys be detected by lines 1130, 1710, and 1720 for paging, and 1150 for the command menu.

While you are making changes, you may also want to correct a bug which I discovered in the Hyphenations subroutine. If you are using hyphenation and it happens to occur at a line where you also have used the formatting command for a margin release, <up arrow> mr=], the word will not be split correctly. See the original line 6010 below:

```
6010 PRINTMID$(WK$+SP$,RM-LM-20,
  38):X=1
```

Change to:

```
6010 PRINTMID$(WK$+SP$,RM-LM+MR-20,
  38):X=1
```

Until you are sure these changes work for you, save this new version of Paper Mate with a different name. An easy way to do this is to list line 2 and modify the filename in the scratch and save statement. Then from immediate mode issue a RUN 2. Donald A. MacNeil.

8023P PRINTER
DEVICE NUMBER SELECTION

by Robert W. Baker

The Commodore 8023P printer has recently been showing up at extremely attractive prices. This is a 132 column, 180 character per second, IEEE-488/GPIB interface printer intended for the older PET and CBM systems. It can, however, be used with the C-64 and C-128 with an appropriate IEEE-488 interface adaptor.

Many users are cquiring 8023P's as secondary printers for their existing systems and have been asking about permanently changing the device number, as is common practice on the 1541 disk. Fear not, for it can be done in the printer and is in fact a very simple change, very similar to that on the 1541.

To oper the printer, disconnect the line cord and lift the top cover as you normally would to change the ribbon. Now remove the screw at each side of the printer, at the rear of the opening just behind the paper feed mechanism. Once these two screws are removed, the entire cover can be gently lifted off the printer and placed aside. The internal logic board should now be visible in the rear compartment of the printer, with the components toward the front of the printer.

Looking at the logic board from the front, you'll notice a number of large 40 pin IC's, with the left most IC marked "U10" cn the board. To the left of this IC you should see a small box marked on the board with the numbers one, two and three to the left. Inside the box are the three corresponding device number selection pads, similar to those in the 1541 disk.

Each pad consists of two metalic semicircles with a connecting trace. To change the printer's device number you simply cut the connecting wire in the appropriate pad(s). Cutting the number one pad adds one to the normal printer device number, cutting the number two pad adds two, and cutting the number three pad adds four. The pads can be cut in any combination to select a device number between four and eleven.

To cut the trace in the pad, you should use a sharp knife like an Exacto. To re-connect a pad, if you later want to restore the printer's normal device number, simply solder a wire across the two semicircles. If you want to add an external device select switch, simply cut the desired pad and wire a single pole single throw switch across the two semicircles. The switch can then be mounted wherever convenient, but try to keep the wire length as short as possible.

Be careful when working inside the printer, use common sense. If you don't feel qualified to make the change, get a friend who is qualified to do it for you, or take the printer to your local dealer or repair shop.

When done making the desired modifications, replace the printer cover and install the two screws that keep it in place. Try a simple test like:

```
OPEN 4,5
PRINT#4,"TEST STRING....."
CLOSE 4
```

Where the device number in the open command (5) matches the new device number you think the printer should respond to. Obviously you'd replace the 5 with whatever device number you changed the printer to. If the printer doesn't seem to respond, then open the printer again and recheck your handy work.

BASIC PROGRAM
LINE NUMBER CROSSREFERENCE

This handy utility program produces a cross reference list of every pogram line reference found in a BASIC program that was saved on disk. The program itself was designed to run on the C-128 in either 64 or 128 mode, as well as on the Commodore-64. It properly analyzes all programs written in BASIC 7.0 on the C-128 or BASIC 2.0 on the C-64 or VIC-20. It cannot handle programs written with BASIC 4.0 on the PET or CBM systems due to conflicts in the BASIC token assignments. This is an updated version of my earlier GOTO/GOSUB cross reference utility in the Commodore-64 Programmer's Library.

This program provides a list of every program line referenced by another line in your program, along with a list of every line that references that particular line. The lines being referenced are those line numbers shown as arguments for the following BASIC commands:

```
GOTO  x
GO TO x
GOSUB x
ON...GOTO  x,y,z...
ON...GOSUB x,y,z...
IF....THEN x
IF....THEN....:ELSE x
RESTORE x
RESUME  x
TRAP x
RUN  x
LIST x-y
COLLISION...,x
```

The output produced gives you a handy way of finding what subroutines or program lines are not being used, what areas are being used the most/least, etc. I've found it very handy in streamlining program size and/or execution times, or for just plain housekeeping.

When you run the program, it first asks for the filename of the program file stored on disk to be analyzed. The program cannot be modified to read program files from cassette tape since they cannot be read as data files. Program files can, however, be read from disk as data files just as they appear in memory. To do this, the program file must be opened with a standard OPEN command, the newer DOPEN command in BASIC 7.0 cannot be used.

After opening the disk file, the program first reads and discards the two byte load address (end of line 200). The program file is then scanned, looking for the appropriate BASIC tokens (lines 260-690). As each token is found, the following line number(s) are read and saved in the GT matrix. The line number of the current line is saved in the LL$ matrix to create the cross reference listing for the corresponding target line.

This program assumes the program file being read follows normal program syntax and doesn't contain any abnormal situations. In other words, the error checking is not 100% fool proof. It does, however, properly handle multiple line numbers in ON...GOTO/GOSUB constructs, periods used for line number zero, and various IF...THEN constructs.

During the scanning of the program files, the link address for each line is read in line 210 and checked for a zero value indicating the end of the program. The current BASIC line number from the start of each line is read in line 220 and converted to a decimal number in LN and a string in LN$. Program lines are scanned by lines 260-690 and found target line numbers are added to the table by the subroutine at lines 1220-1400. Note that new entries in the matrices are inserted in their proper position to always keep the entries in ascending numerical order.

The target references are collected in the LL$ matrix entries. The first part of every entry in this matrix is the corresponding target line number that entry refers to. Each reference line number is just added to the end of the string in each entry as it is found. If too many references occur for any particular line number, another entry is

added to the LL$ matrix with the same line number plus 0.1 to allow more references to be added. Remember that any character string cannot exceed 255 characters in length within BASIC. So, if the list of references gets to close to this limit, another entry must be created for the new references.

As the program executes, the line number of the current line being analyzed is displayed so you can see how the program is progressing. Be patient, the program can take a while to analyze large programs or those that reference a large number of program lines. While on the subject, the program is currently limited to handling up to 500 target lines as set by the dimensions of GT and LL$ in line 110. This seems to be a reasonable limit for most systems. You may, however, run out of memory if your program being analyzed contains an abnormally high number of line references. If you are running this program on a C-128 in 128 mode, then you can safely raise this value if needed.

Once the data is collected, you're given the option of printing or displaying the formatted information. In either case, the first line of output indicates the filename of the program that was analyzed. The left column of numbers lists the actual target lines found in the program. These are the lines referenced by the various BASIC commands within the program. Each program line containing a reference to the listed target line is then listed to the right of the separating dash. If enough reference lines were found to fill more than one line, the target line number will only appear on the first line printed.

While the output is being displayed or printed, pressing any key on the keyboard will suspend the output. This is especially convenient when using the screen display, so you can stop the screen from scrolling to read what is being generated. When ready to continue, simply press another key on the keyboard and the output will resume. If you press the 'Q' key when the output is suspended, you can terminate the program without any further output being generated.

Screen displays are formatted for 40 column lines while printer output is formatted for 80 column lines. If you want to run this program on a C-128 with an 80 column display in 128 mode, then change the first value of RM from 25 to 65 in line 790. If your printer has more or less than 80 characters per line, then change the value of RM at the end of line 790 to 15 less than the maximum printer line length. If you need to do anything special for yor printer, you can add lines before or after the OPEN in line 760.

One final note, if any errors are detected while reading the program file from disk, the error information returned from the disk will be displayed and the program will terminate with all files properly closed.

For those that don't like to type or have trouble getting the program to work, my standing offer still applies. Simply send $5 to cover costs and I'll send a copy of the program on disk. I'll take care of the disk, mailer, and first class postage.

Robert W. Baker

Please note the following conventions in the included listing.

]= cursor right	1/4= cursor left
g= cursor down	Q= cursor up
s= home	S= clear home
r= reverse on	R= reverse off

I know the program works. It has to. I listed it right after I ran it. I know how frustrating it can be to key a program in and then not have it work correctly. And then you can proofread it again and again, and still find no error. If you cannot get it after several tries, either send $5 to Bob Baker, or, if you have a modem, download it from Quantum Link or Starship MPC. All programs listed in the Midnite can be found in either place.

Tim

```
10 rem        basic program
20 rem    line cross references
30 rem      by robert w. baker
40 :
50 print"S";spc(13);"basic program"
60 print"       line number cross referencesqq"
70 print"prints or displays a cross reference"
80 print"table of all program line numbers used"
90 print"in any basic program saved on disk.q"
100 print"     rem 37 C='Y'                    q"
110 read nt: dim t(nt),gt(500),ll$(500)
120 for x=1 to nt: read t(x): next x
130 sp$=chr$(160): gn=0
140 print"name of basic program on disk:"
150 print"]]]";sp$;"←←←";
160 input fl$: if fl$=sp$ then end
170 close 15: open 15,8,15
180 open 5,8,5,"0:"+fl$+",p,r": gosub 1090
190 print"qok, scanning program file"
200 print"qat line:";: gosub 1050
210 gosub 1050: if v+v1=0 then 700
220 gosub 1050: ln=v1+(256*v)
230 ln$=" "+mid$(str$(ln),2)
240 print tab(10);ln$;"          ": rem 10 spaces
250 print"Q";
260 rem scan basic line for references
270 gosub 1060
280 if v=32 then 270
290 if v=0 then 210
300 if v<>34 then 350: rem skip inside quotes
310 gosub 1060: if v=34 then 270
320 if v>0 then 310
330 goto 210
340 rem scan standard tokens in tbl
350 z=0: for x=1 to nt
360 if v=t(x) then z=v: x=nt
370 next x:if z>0 then gosub 1220:goto 280
380 if v<>145 then 450: rem 'on'
390 gosub 1060: if v=0 then 210
400 if (v<>137) and (v<>141) then 390
410 gosub 1220
420 if v=44 then 410
430 if v=32 then gosub 1060: goto 420
440 goto 280
450 if v<>203 then 490: rem 'go'
460 gosub 1060: if v=32 then 460
470 if v=164 then gosub 1220
480 goto 280
490 if v<>155 then 540: rem 'list'
500 gosub 1220
510 if v=32 then gosub 1060: goto 510
520 if v=171 then gosub 1220
530 goto 280
540 if v<>206 then 570: rem 2 byte tokens
550 gosub 1060: if v=0 then 210
560 goto 270
570 if v<>254 then 270
580 gosub 1060: if v=0 then 210
590 if v<>23 then 270: rem 'collision'
600 gosub 1060: if v=0 then 210
610 if v=58 then 270
620 if v=44 then gosub 1220: goto 280
630 if v<>40 then 600
640 rem ignore inside ()
650 gosub 1060: if v=0 then 210
660 if v=58 then 270
670 if v<>41 then 650
680 goto 600
690 rem *** output results ***
700 close 5: close 15
710 print: pd=3:
720 print"qdone, want printed output (y/n): ";
730 get c$: if c$="n" then 760
740 if c$<>"y" then 730
750 pd=4: gosub 1160
760 open 4,pd
770 gosub 1130
780 ifgn=0thenprint#4,"no refrncs found":goto1020
790 rm=25: if pd=4 then rm=65
800 for x=0 to gn-1: if pd=3 then 820
810 ifpg=56thenfory=1to10:print#4:nexty:gosub1140
820 s$=right$("     "+str$(gt(x)),5)+" -"
830 if s$<>l$ then l$=s$: goto 850
840 s$="       ": rem 7 spaces
850 print#4,s$;
860 b=0: for y=0 to int(len(ll$(x))/rm)
870 a=b+1: b=a+rm: if b>255 then 920
880 c$=mid$(ll$(x),b,1): if c$="" then 920
890 c=asc(c$)
900 if c>47 and c<58 then b=b+1: goto 880
910 rem break line at space
920 ln$=mid$(ll$(x),a,b-a): if ln$="" then 950
930 if y>0 then print#4,"        ";:rem 8 spaces
940 print#4,ln$: pg=pg+1
950 next y
960 get c$: if c$="" then 1010
970 if pd=4 then gosub 1190
980 get c$: if c$="" then 980
990 if c$="q" then 1020
1000 if pd=4 then gosub 1160
1010 next x
1020 close 4: end
1030 rem ***** subroutines *****
1040 s$=s$+c$: goto 1060
1050 gosub 1060: v1=v
1060 get#5,c$: gosub 1090
1070 if c$="" then v=0: return
1080 v=asc(c$): return
1090 input#15,en,em$,et,es: if en=0 then return
1100 print:print"rdisk error:R";en;
1110 print"  rtrk/sec:R";et;"/";es: print em$
1120 close 4: close 5: close 15: end
1130 if pd=3 then print"S";
1140 print#4,"line# references in: ";fl$
1150 print#4: pg=2: return
1160 print"Sprinting cross reference tableqq"
1170 print"press any key to suspend output"
1180 return
1190 print"qqoutput suspendedqq"
1200 print"r any key to continue, q to quitR"
1210 return
1220 lt=-1
1230 gosub 1060: if v=32 then 1230
1240 if v<48 or v>57 then 1270
1250 if lt<0 then lt=0
1260 lt=(10*lt)+val(c$): gosub 1060: goto 1240
1270 if v=46 then if lt<0 then lt=0: gosub 1060
1280 if lt<0 then return
1290 z=gn: if gn=0 then 1390
1300 for x=0 to gn-1: if int(lt)<>gt(x) then 1350
1310 if right$(ll$(x),len(ln$))=ln$ then 1340
1320 if len(ll$(x))>246 then lt=lt+0.1: goto 1350
1330 ll$(x)=ll$(x)+ln$
1340 x=gn: next x: return
1350 if lt>gt(x) then next x: goto 1390
1360 z=x: for y=gn to z step -1
1370 gt(y+1)=gt(y): ll$(y+1)=ll$(y): ll$(y)=""
1380 next y
1390 gt(z)=int(lt): ll$(z)=ll$(z)+ln$
1400 gn=gn+1: return
1410 data 8: rem #standard tokens
1420 rem standard tokens in following order,
1430 rem goto,gosub,then,restore
1440 rem resume,trap,run,else
1450 data 137,141,167,140,214,215,138,213
```

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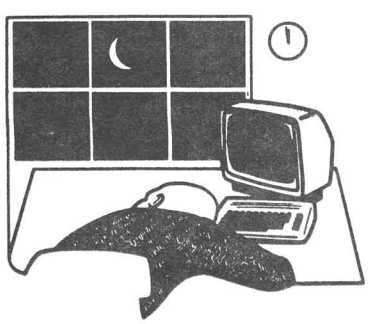

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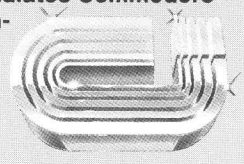

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